## In the Claims

1.    (Previously Presented)    An apparatus comprising:

a network interface element configured to receive an inbound packet at a line rate; and

a control element, wherein

said control element is coupled to said network interface element,

said control element is configured to determine a packet priority associated with
said inbound packet substantially at said line rate,

said control element comprises

a first buffer configured to store said inbound packet, and

an inbound queue manager configured to store at least a portion of said
inbound packet using a second buffer, and

said second buffer is substantially larger than said first buffer.


2.    (Cancelled)


3.    (Previously Presented)    The apparatus of claim 1, wherein said control
element comprises:

a control element configured to perform rate limiting on a plurality of packets including
said inbound packet substantially at said line rate.


4.    (Previously Presented)    The apparatus of claim 1, wherein said inbound
queue manager comprises a buffer usage manager.


5.    (Previously Presented)    The apparatus of claim 1, wherein said control
element comprises:

a control element configured to determine a class of service associated with said inbound
packet.

6.      (Currently Amended)      The apparatus of claim 5, wherein
said inbound packet comprises a header and a tail; and
said control element further comprises:

an inbound receiver comprising said first buffer;

a lookup circuit coupled to said inbound receiver and configured to compare said
header to a data structure and to determine routing information; and

a first packet modifier circuit configured to modify said header according to at
least said routing information to form a modified packet[[;]] .

7.      (Original)      The apparatus of claim 6, wherein said inbound queue manager
comprises:

an inbound queue manager coupled to said first packet modifier circuit and configured to
store said modified packet using said second buffer.

8.      (Original)      The apparatus of claim 6, wherein said data structure comprises an
M-way branching tree structure.

9.      (Previously Presented)      The apparatus of claim 1, wherein said control
element further comprises:

an outbound receiver comprising a third buffer configured to store an outbound packet
substantially at said line rate;

a second packet modifier circuit configured to modify said outbound packet substantially
at said line rate; and

an outbound queue manager coupled to said second packet modifier circuit and
configured to store said outbound packet using a fourth buffer, wherein
said fourth buffer is substantially larger than said third buffer.

10.      (Previously Presented)      A method comprising:
storing an inbound packet using a network interface, wherein

said storing comprises storing an inbound packet using a first buffer of said
network interface;

determining a packet priority associated with said inbound packet substantially at a line rate of said network interface; and

storing at least a portion of said inbound packet using a second buffer of said network interface in response to said determining, wherein

said second buffer is substantially larger than said first buffer.

11.-12. (Cancelled)

13.    (Previously Presented)    The method of claim 10, further comprising:

performing rate limiting on a plurality of packets including said inbound packet substantially at said line rate of said network interface.

14.    (Previously Presented)    The method of claim 10, wherein said determining comprises:

determining a class of service associated with said inbound packet.

15.    (Original)    The method of claim 14, wherein

said inbound packet comprises a header and a tail; and

said method further comprises:

comparing said header to a data structure substantially at said line rate of said network interface;

determining routing information substantially at said line rate of said network interface; and

modifying said header according to at least said routing information to form a modified packet substantially at said line rate of said network interface.

16.    (Original)    The method of claim 15, wherein said comparing comprises:

comparing said header to an M-way branching tree structure.

17.    (Original)    The method of claim 15, wherein said storing at least a portion of said inbound packet using a second buffer of said network interface in response to said determining comprises:

storing said modified packet using said second buffer.

18.     (Original)     The method of claim 17, wherein said storing said modified packet using said second buffer comprises:
managing buffer usage.

19.     (Previously Presented)     The method of claim 10, further comprising:
storing an outbound packet using a third buffer of said network interface;
modifying said outbound packet substantially at said line rate of said network interface;
    and
storing said outbound packet using a fourth buffer of said network interface in response
    to said modifying, wherein
    said fourth buffer is substantially larger than said third buffer.

20.     (Previously Presented)     A computer-readable storage medium having a plurality of instructions executable by a computer embodied therein, wherein said plurality of instructions when executed cause said computer to perform a method comprising:
storing an inbound packet using a network interface, wherein
    said storing comprises storing an inbound packet using a first buffer of said
        network interface;
determining a packet priority associated with said inbound packet substantially at a line
    rate of said network interface; and
storing at least a portion of said inbound packet using a second buffer of said network
    interface in response to said determining, wherein
    said second buffer is substantially larger than said first buffer.

21.-22. (Cancelled)

23.     (Previously Presented)     The computer-readable storage medium of claim 20, said method further comprising:
    performing rate limiting on a plurality of packets including said inbound packet
    substantially at said line rate of said network interface.

24. (Previously Presented) The computer-readable storage medium of claim 20, wherein said determining comprises:

determining a class of service associated with said inbound packet.

25. (Previously Presented) The computer-readable storage medium of claim 24, wherein

said inbound packet comprises a header and a tail; and

said method further comprises:

comparing said header to a data structure substantially at said line rate of said network interface;

determining routing information substantially at said line rate of said network interface; and

modifying said header according to at least said routing information to form a modified packet substantially at said line rate of said network interface.

26. (Previously Presented) The computer-readable storage medium of claim 20, said method further comprising:

storing an outbound packet using a third buffer of said network interface;

modifying said outbound packet substantially at said line rate of said network interface; and

storing said outbound packet using a fourth buffer of said network interface in response to said modifying, wherein

said fourth buffer is substantially larger than said third buffer.

27. (Previously Presented) An apparatus comprising:

means for storing an inbound packet using a network interface, wherein

said means for storing comprises means for storing an inbound packet using a first buffer of said network interface;

means for determining a packet priority associated with said inbound packet substantially at a line rate of said network interface; and

means for storing at least a portion of said inbound packet using a second buffer of said network interface, wherein

said second buffer is substantially larger than said first buffer.

28.-29. (Cancelled)

30. (Previously Presented) The apparatus of claim 27, further comprising:
means for performing rate limiting on a plurality of packets including said inbound
packet substantially at said line rate of said network interface.

31. (Previously Presented) The apparatus of claim 27, wherein said means for
determining comprises:
means for determining a class of service associated with said inbound packet.

32. (Original) The apparatus of claim 31, wherein said inbound packet comprises
a header and a tail; and
said apparatus further comprises:
means for comparing said header to a data structure substantially at said line rate
of said network interface;
means for determining routing information substantially at said line rate of said
network interface; and
means for modifying said header according to at least said routing information to
form a modified packet substantially at said line rate of said network
interface.

33. (Previously Presented) The apparatus of claim 27, further comprising:
means for storing an outbound packet using a third buffer of said network interface;
means for modifying said outbound packet substantially at said line rate of said network
interface; and
means for storing said outbound packet using a fourth buffer of said network interface in
response to said modifying, wherein
said fourth buffer is substantially larger than said third buffer.